

Docket No. CIB-T105X
Serial No. 09/129,298

In The Claims

This listing of claims will replace all prior versions and listings of claims in this application.

1. (currently amended) A method of making a localized mutation in a plant cell to a ~~target an ALS gene having a known sequence causing a desired trait in the plant cell to be herbicide resistant~~ comprising the steps of:

(a) adhering to a particle a recombinagenic oligonucleobase, which contains a first homologous region which has a sequence identical to the sequence of at least 6 base pairs of a first fragment of the ~~target ALS~~ gene and a second homologous region which has a sequence identical to the sequence of at least 6 base pairs of a second fragment of the ~~target ALS~~ gene, and an intervening region which contains at least 1 nucleobase heterologous to the ~~target ALS~~ gene, which intervening region connects the first homologous region and the second homologous region;

(b) introducing the particle into a cell of a population of plant cells;

(c) identifying a cell of the population of plant cells having a mutation located between the first and second fragments of the ~~target ALS~~ gene.

2. (previously presented) The method of claim 1, wherein the recombinagenic oligonucleobase is a mixed duplex oligonucleotide (MDON) and each of the homologous regions contains an RNA segment of at least 6 RNA-type nucleotides.

3. (original) The method of claim 2, wherein the intervening region is at least 3 nucleotides in length.

4. (original) The method of claim 2, which further comprises the step of culturing the identified cell so that a plant is generated.

5 - 7 (cancelled)

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8. (previously presented) The method of claim 2, wherein the adhering step is performed in a solution comprising 1.1-1.4 M NaCl and 18-22 μ M spermidine and at least 14 μ g/ml mixed duplex oligonucleotide (MDON).

9. (canceled)

10. (currently amended) The method of claim [9] 1, wherein the plant cell is a maize, wheat, rice or lettuce cell.

11. (currently amended) The method of claim [9] 1, wherein the plant cell is a potato, tomato, canola, soybean or cotton cell.

12 - 14 (cancelled)

15. (original) The method of claim 2, which further comprises making seeds from the plant or from progeny of the plant.

16. (currently amended) A method of making a localized mutation in a ~~target~~ an ALS gene in a plant cell having a cell wall ~~comprising the steps of: plant cell to a target gene having a known sequence causing a desired trait in the plant cell having a cell wall~~ comprising the steps of:

- (a) perforating the cell walls of a population of plant cells;
- (b) introducing a recombinagenic oligonucleobase, which contains a first homologous region which has a sequence identical to the sequence of at least 6 base pairs of a first fragment of the ~~target~~ ALS gene and a second homologous region which has a sequence identical to the sequence of at least 6 base pairs of a second fragment of the ~~target~~ ALS gene, and an intervening region which contains at least 1 nucleobase heterologous to the ~~target~~ ALS gene, which intervening region connects the first homologous region and the second homologous region;
- (c) identifying a cell of the population of plant cells having a mutation located between the first and second fragments of the ~~target~~ ALS gene.

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17. (previously presented) The method of claim 16, wherein the recombinagenic oligonucleobase is a mixed duplex oligonucleotide (MDON) and each of the homologous regions contains an RNA segment of at least 6 rNA-Type nucleotides.

18. (original) The method of claim 17, which further comprises the step of culturing the identified cell so that a plant is generated.

19. (currently amended) The method of claim 17, wherein the sequence of the ~~target~~ ALS gene between the first and the second fragments differs from the sequence of the intervening region of the mixed duplex oligonucleotide (MDON) at a mismatched nucleotide and the mutation of the ~~target~~ ALS gene is located adjacent to the mismatched nucleotide.

20. (currently amended) The method of claim 17, wherein the sequence of the ~~target~~ ALS gene between the first and the second fragments differs from the sequence of the mutator segment of the mixed duplex oligonucleotide (MDON) at a mismatched nucleotide and the mutation of the ~~target~~ ALS gene is located at the mismatched nucleotide.

21. (cancelled)

22. (currently amended) The method of claim [21] 16, wherein the plant cell is a maize, wheat, rice or lettuce cell.

23. (currently amended) The method of claim [21] 16, wherein the plant cell is a potato, tomato, canola, soybean or cotton cell.

24 -26. (cancelled)

27. (currently amended) The method of claim [17] 16, which further comprises making seeds from the plant or from progeny of the plant.

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